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161. Proposed by R. D. CARMICHAEL, Anniston, Ala.

Find a solution of $x^4-5x^2+4\equiv 0 \pmod{p.\overline{2p+1}}$, where both p and $2p+1$ are odd primes.

162. Proposed by L. E. DICKSON, Ph. D., Associate Professor of Mathematics, The University of Chicago.

If p is an odd prime, find the number of incongruent integers x for which x^4+2ex^2+f is a quadratic residue of p.

166. Proposed by H. S. VANDIVER, Bala, Pa.

Eliminate any five of the seven quantities h, j, k, l, m, r, s, from:

$$\begin{aligned}
j+m+r&=k+l+s,\\
h&=3(r+s)-(n+1),\\
j+m+2r+s&=n,\\
hr+j^2+km+ms&=jk+mr+s^2+rs,\\
ks+jl+rs+r&=sh+jk+l^2+rk,\\
hr+jl+ks+ls+km&=jm+mr+2rs+rj.
\end{aligned}$$

167. Proposed by R. D. CARMICHAEL, Anniston, Ala.

Prove that $\Pi\dfrac{p+(-1)^{\frac{1}{2}(p+1)}}{p-(-1)^{\frac{1}{2}(p+1)}}=2$, the consecutive values of p being the natural odd primes in order.

NOTES AND NEWS.

At Princeton University Dr. G. D. Birkhoff, assistant professor, and Dr. William Gillespie, preceptor, have been promoted to full professorships in mathematics. S.

Dr. Anna J. Pell has been elected to an instructorship in mathematics at Mount Holyoke College for the year 1911-1912. She is at present conducting courses at Armour Institute, Chicago, during the illness of her husband, Professor Alexander Pell. S.

Professor E. R. Hedrick, of the University of Missouri, has leave of absence for eight months and will spend the time in travel and study abroad. S.

Professor E. B. Van Vleck, who has been on leave of absence from the University of Minnesota since June, 1910, has returned to resume his duties for the second semester. S.

Dr. H. B. Smith has been appointed Instructor of Mathematics at the University of Pennsylvania, for the ensuing term, to fill the vacancy caused by the temporary absence of Professor Evans. C.

The Department of Superintendents of the National Education Association met at Mobile, Alabama, on February 23, 24, 25, 1911. The annual meeting of the Association is to be held in San Francisco early in July. S.

Professor Gilbert A. Bliss, of the University of Chicago, who during the autumn of 1910 was traveling in Japan and other eastern countries, is now in Paris. He will return to the University of Chicago in Aprill, 1911, having completed the journey around the world. S.

Teachers' College, Columbia University, New York City, has recently issued a bibliography of mathematical works suitable for high school and normal school libraries. This is prepared by Professor David Eugene Smith and Professor Clifford Brewster Upton. Teachers who may care for this bibliography may obtain it gratis by writing to the Secretary of Teachers' College, Columbia University. S.

The first of a series of articles, later to be issued in book form, by Dr. George Bruce Halsted, appeared in February's *Open Court* under the title: The Prehuman Contributions to Arithmetic. Dr. Halsted will, in these articles, transmute the dry bones of arithmetic into a fascinating serial. A commendatory review of the first of this series of articles is given in the *Chicago Tribune* of February 9. F.

The Chicago Section of the American Mathematical Society has completed its fourteenth year, having held since its organization in 1897, twenty-eight regular meetings, at which four hundred and eighty-one papers have been presented, or an average of about eighteen papers per meeting. The first conference on the desirability of organizing such a section was called on December 31, 1896, and was signed by twenty-eight members of the Society, and the conference was attended by seventeen members. At this conference fourteen papers were read and at the second conference in April, 1897, ten papers were read. At the latter time the Chicago Section was formally established. S.

We are grieved again to record the death of another of our loyal subscribers and contributors, Joseph Carter Corbin, whose death occurred January 9, 1911, from heart failure. The following brief sketch of his life was furnished by his daughter Louise: Mr. Corbin was born in Chillicothe, Ohio, March 26, 1833. He was the eldest son of William and Susan C. Corbin; graduated from Ohio University in 1853, (A. M. from the same); married September 11, 1866, to Mary J. Ward, at Cincinnati; taught school in Louisville, Kentucky, about twelve years, assisting his brother-in-law, Rev. Henry Adams; later was employed by the Bank of Ohio Valley in Cincinnati; while there he served two years on the Board of Education, and edited *The Citizen* seven years. Moved to Little Rock, Arkansas, in 1870, and edited *The Republican* for General Powell Clayton; State Superintendent of Public Instruction in 1873; Principal of school at Jefferson City, Missouri, 1874-76; organized Branch Normal College at Pine Bluff, Arkansas, 1876, and was President 1876-1902; President Ouachita Baptist College, Camden, Arkansas, 1902 to January, 1904; at the request of the Board of Education of Pine

Bluff, he resigned and became Principal of Merrill School and served until the close of the school year, May, 1910. He was actively engaged in Masonic work and in conducting a private correspondence school at the time of his sudden death. He was the father of five children, two of whom, William H. and Louise M., survive him. In politics a Republican; in religion a Baptist; and a thirty-third degree Mason. He was a subscriber and contributor to the MONTHLY from its beginning.

BOOKS.

Diophantus of Alexandria. A Study in the History of Greek Algebra. By Sir Thomas L. Heath, K. C. B., Sc. D., sometime Fellow of Trinity College, Cambridge, England. Second edition, with a supplement containing an account of Fermat's Theorems and Problems connected with Diophantine Analysis and some Solutions of Diophantine Problems by Euler. Royal 8vo. Cloth, viii+388 pages. Price, 12s. 6d., net. London, England: The Cambridg University Press.

The first edition, the first English translation of Diophantus' *Arithmetica* which appeared in 1885, has long been out of print and thus that interesting and, to many, fascinating treaties had become practically inaccesible to English readers. Inquiries for it at different times suggested to the author the revision of his work done twenty-five years ago and the result is this second edition which conforms to recent discoveries in the history of mathematics. In this new edition, the author has rewritten the whole of the introduction, except the chapters on the editions of Diophantus, his methods of solutions, and the porisms, and other assumptions found in his work; while the chapters on the methods and on the porisms, etc., have been made fuller.

Much attention has been given to Fermat's notes on the various problems, and as much of this interesting material could not be incorporated as foot notes, the author added a supplement in which much attention is given to the theorems of Fermat and in which also is included a number of Euler's remarkable solutions of difficult Diophantine problems.

In its present form, the book will be in great demand by all mathematicians who are interested in this interesting phase of the theory of numbers. F.

College Mathematics Notebook. By Robert E. Moritz, Ph. D., Professor of Mathematics, University of Washington. Price, 80 cents. Ginn & Co.

This note book will be found very convenient and serviceable for the college teacher of mathematics. F.

ERRATA.

On page 241, No. 12, Vol. XVII, December 1910, problem 343 solution, make the following changes:

In line six of the solution for "A on the day x," read "A on the day $x+1$," and in the next line for "B on the day x," read "B on the day $x+1$." On page 243, in line three, for "$(1.05)^1$," read "$(1.05)^0$," and in the next line for "or," read "of," and in the same line for "0.202," read "0.002." In the fourth line from the end of solution for "(0.8583)," read "(0.9583)."